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ABSTRACT

This research studies differential aspects within school social systems and the mediating effect of social groupings. It studies the social and social-psychological environments both between schools and within school socioeconomic, ethnic, and curricular environments and relates these to such student adjustment behaviors as: achievement, attendance, discipline, and drop out rates. Data was collected from all 9th grade students in the several public high schools of a socially and ethnically heterogeneous New England city. Both previous and present student record information on attendance, achievement and discipline was included, as well as instruments designed for this study including social (SES, ethnic, and curricular) and social-psychological (self-concept, sense of control, expectations and perceived group and individual integration) data. This is the first report of a longitudinal study which will trace student attitudes, behaviors and outcomes through high school. (Author)

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# STUDENT ADAPTATION TO HIGH SCHOOL SOCIAL GROUPINGS AND NORMATIVE ENVIRONMENTS

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## I. Introduction

Much evidence establishes a high correlation between student background variables and school success. Strong associations have also been found between socio-economic, racial and ethnic composition (or social context) of schools and student outcomes. While research on these variables indicates that they account for much of the outcome variation among individuals (Coleman, et.al., 1966) and between schools (Mayeske, et.al., 1969) they have not separated the possible effects of family background differences from possible effects of differences between school environments (Mayeske et.al.,1969). The view that background factors are the most important variables in accounting for student outcomes tends to be reinforced by the related evidence that differences in school environment variables such as school facilities, teacher qualifications and teacher-pupil ratios-commonly assumed to effect school outcomes do not account for much of the difference in school achievement. (Coleman, et.al.,1966).

Methodologically, these studies almost exclusively use the school as the focus of interest and report between school differences for the population as a whole. These studies have used as outcome measures one or two cognitive test results or a projection of future occupational or educational plans. Few studies within line of research have examined differential effects of schools upon varied sub-populations. The effects of such studies have led to speculation in both the academic and popular press that schools cannot make any significant difference in either academic achievement or future socio-economic status of students (Jencks, et.al., 1972 and Hauser, et.al.,1974). Such conclusions seem to imply that either socio-cultural environments have little or no effects on human behavior or that social science research has exhausted all possible explanations of the variance of in-school achievement.

It does seem quite probable, however, that characteristics of school environment may explain some of the difference in student outcome both between and within schools. In addition, school human relations and concentrated service programs attempted by many school systems have been based upon the contrary position that school program intervention can, in fact, make a difference in student achievement. That this is possible has been demonstrated in an impressive but limited body of literature, which indicates that schools actually may perform many and varied functions which have impact on the shaping of skills and attitudes of individuals and groups. (Rist, 1970; Epstein and McPartland, 1976, Smith and Geoffrey, 1968; Brown and Saks, 1975). Some of this research pointed to the manner in which schools serve to overcome or reinforce the social attitudes of students (Wilson, 1969 or Rist, 1970, Smith and Geoffrey, 1968). Several others have concentrated on the relationship between expectations and outcomes (Rosenthal and Jacobson, 1968; Gumpert and Gumpert, 1968; Beez, 1968, and Schrank, 1968). Still others have found groups of social and social-psychological climate variables to be more important to achievement than the socio-economic composition of the schools (McDill, Meyers, Rigsby 1967/1973 and Brookover, et.al., 1973/1975).

The research reported here is part of a larger longitudinal study which examines the social climate or context of high schools. Our research is concerned with: (a) how differences in normative climates relate to differences in various student outcomes; (b) how the relationship between normative academic climates and student outcomes vary over time; (c) how schools as a whole and sub-groups within schools differ with respect to the normative climates they present to students. Stated more generally we are studying the manner by which students in differing social sub-groupings and/or in different schools are socialized into varying school behaviors.

The portion of the research which we are reporting at this time utilizes direct measures of school climate, in this respect differing from most other investigations. The outcome measures examined included standardized achievement test scores, grade point average, course failure and attendance rates. It also examines the effect upon students of climate variables over time. Finally, both individual students and schools are treated as units of analysis.

## II. Methods

This study arose out of an evaluation research project conducted by the authors on a school program funded by ESAA (Emergency School Aid Act) in an eastern seaboard city of approximately 180,000. The evaluation study was concerned with how ninth grade students attending the four public high schools in the city adapted to the transition between eighth and ninth grade. A broad-based design was developed which enabled us to examine the relationship between a range of social psychological climate variables and several student outcomes. This design served both the policy interests of the school administration and our research interests.

### School Characteristics

There are particular characteristics of the city and its enrollment patterns that need be noted. The total school enrollment has dropped over the past several years, reflecting both national trends and the continuing loss of populace from the urban core. Further, a large number of the remaining population enroll in private or parochial schools, from which there is considerable crossover to public enrollment. For several years prior to and including this study, approximately 25% of the ninth grade students in the city attended private (5%) or parochial (20%) schools. Pupil enrollment in these non-public schools has the effect of depressing the SES composition of the population available to the public schools at this (and other) grade levels.

Enrollment in the city's public high schools is divided into four schools. (See Table 1) One school (B) has a selective admissions policy which is open to any resident of the city based on test scores, grades and teacher recommendations. The remainder of the population is distributed among three geographic neighborhoods through feeder patterns

which have been modified over time in attempts to balance both the total enrollment per school and the enrollment by minority students. The system has a desegregation plan which sets lower and upper limits on percentages of enrollment by Black students of which there are three main practical effects:

(a) school B has somewhat different standards for admission criteria for Blacks to attain the minimal enrollment

(b) a number of students are bused beyond neighborhood lines for racial balance

(c) there are times when admission to the neighborhood school is closed by race since the enrollment maximum has been reached

The effects of these policies is that there are some discernible differences among the four schools in the system, with regard to the background characteristics. Concurrently, there are differences in the kind of academic skill brought by the varied student populations.

Research Design

The design provided for the administration of three questionnaires over the course of the 1975-76 academic year to ninth grade students and the analysis of school data on grades, achievement test scores, attendance and suspension.

The first questionnaire was distributed in November, 1975, to all 1780 ninth graders in the four high schools who had received grades at the end of the first quarter of the academic year. The second and third questionnaires were administered to a random sample of 240 pupils in December and May of the academic year. These latter instruments included a variety of additional measures of school climate and student attitudes about their school experience. The questionnaire in May, which included some of the same items which were in the November and December question-

naires, provided a means of establishing if students attitudes and their perceptions of school climate had changed during the year. The response rate for the three instruments was as follows: 64%, 74% and 64%.

Many of the items included in the questionnaires were adaptations of normative climate scales employed by Brookover, et.al. (1973), McPartland and Epstein (1974) and Coleman (1961, 1966). Several additional measures of school culture were developed by the authors.

A series of three varimax rotation factor analyses were performed on selected items in the three questionnaires resulting in the identification of 18 factors. Eight of the variables derived from these factor analyses are utilized in the study analysis.

Dependent Variables

1. California Achievement Test, 1970 Edition

According to the test publisher the California Achievement Test (CAT) ".... is designed to measure the skill with which the student performs in curricular tasks which are basic to learning progress." (Tiegs and Clark, 1970). The particular CAT instrument used in this school district was Level 5, Form B, which was designed for grades 9 through 12 and contains tests in reading, mathematics and language. The analysis reported here utilized the students standardized scores on the reading sub-test.

2. Grade Point Average

Final grades for all the courses completed by a student during the ninth grade were examined and assigned a numerical value using the following scale: A = 4; B = 3; C = 2; D = 1 and E = 0. The total grade value of all courses taken (excluding gym) was divided by the total number of courses taken during the year to yield the final Grade Point Average (GPA).

Independent Variables

3. Socioeconomic Status (SES)

This variable was assessed via an item in the first questionnaire which asked students to indicate the current or most recent occupation of their father using a modified version of the following occupation scale:

1 - professional and technical

2 - manager, official or executive

3 - clerk or office worker

4 - skilled trade or craftsman

5 - operative or semi-skilled

6 - laborer

4. Ethnicity

Recognizing the distinctive ethnic composition of the school district in this study, students were asked to indicate which of the following ethnic groups they belonged to:

| | |
|---|---|
| Black | Spanish |
| Irish | Yankee |
| Italian | Very Mixed |
| Jewish | Other |
| Portuguese | |

For the purposes of the analysis reported here, the responses were recoded into two groups: Black and White. Students who indicated "very mixed" or "other" were excluded from the analysis.

5. Age

Students were asked to indicate their month and year of birth and this information was recoded in terms of age in months.

6. Sex

Self-explanatory

7. Absence

Information regarding the number of days absent (out of 180 days of schooling required by state law) was supplied for all ninth grade students by the school department.

The following social-psychological variables were derived from the factor analyses of items from the three questionnaires.

8. Self Concept of Academic Ability

This factor was derived from seven items which asked students to evaluate their academic work and academic potential in relation to their friends and other students in the school.

9. Sense of Control

Six questions employed to measure sense of control were identified by means of the factor analysis. Three of the questions were the same ones employed by Coleman in the 1966 study of equality of educational opportunity. The other three were developed by the authors to represent measures of the degree of potency which the students felt with respect to their chances for academic success in their school.

10. Parent-Student Interaction

This factor consisted of five items which were similar to those utilized by Brookover, et.al. in their studies of elementary school climates and academic achievement (1973). The questions asked the student to report the likelyhood and frequency with which they talk with their parents about school experiences.

11. Educational Plans

This factor consisted of three items which dealt with students' expectations regarding the likelyhood of finishing high school, their program of study (general, vocational, business or college) and their estimates of their ability to attend college.

12. School Attraction

This factor consisted of six items which asked the student to compare their eighth and ninth grade experience and indicate if they had more, the same, or less possitive feelings in the ninth grade with respect to whether: their teachers liked them and treated them fairly, their classes were interesting or a waste of time, they had pride in their school and they were learning things that will help them.

13. School Disorder

This factor consisted of five items which asked the student to compare their high school with their middle school and indicate whether their high school was more, the same, or less likely to: be a safe place, have students who got into trouble, have students who respected their teachers and have students who separated into groups by race.

14. Social Integration

This variable was derived from a modification of a measure developed by Coleman in his study of adolescence (1961). Students were asked to think of the activities that go on in their school and indicate "how far from the center of things" they were on five-point scale displayed in a series of concentric circles. Students were also asked to indicate where they would like to be using a similar five-point scale. The difference score between where they would like to be and where they actually saw themselves was used to measure their relative satisfaction with their degree of social integration into the life of the school.

15. Academic Expectations Held by Others

Six items which were derived from the work of Brookover, et. al. (1973) were shown by means of a factor analysis to be strongly related. These six questions asked the students to report the degree to which they and their friends are expected to be good students by their parents, teachers and friends.

16. School Academic Norms

This factor consisted of nine items which asked students to report the degree to which their peers in school expressed behavior which would tend to discourage academic achievement. For example, one of the questions asked: "how many students in your classes don't care if they get bad grades?"

For this paper four school climate variables were utilized to determine if there had been any change over the course of the year. These were: self concept of academic ability, sense of control, academic expectations held by others and school academic norms.

Many analyses of the relationship between student outcomes and school climate or contextual variables have used the school as the unit of analysis with questionnaire and outcome data drawn from many different schools. The data we had access to clearly places some limits on a between-school comparison. Nonetheless, we were interested in examining the degree to which the predictive power of student background and school climate variables in accounting for student outcomes might vary among the four schools in our sample and between different sub-groups within the schools.

III. ANALYSIS:

Results: Section One

Three different sets of results are reported here: (a) regression analyses of GPA and CAT for the total population and the four schools, (b) regression analyses of GPA and CAT scores for each of the four schools, and (c) analyses of change in student climate variables.

Table 2, which reports the GPA results for the population as a whole, placed the control variables into the equation in the following order: Socio-economic status, Race, Sex and Age, Total Absence, CAT and the social-psychological variables were placed into the equation on the basis of their correlation with GPA after the effects of all previously entered variables had been partialed out.

(TABLE 2 ABOUT HERE)

The regression using CAT scores as the dependent variable for the total population is shown in Table 3. Again we have first controlled for socio-economic status, followed by race, sex, and age. Total absence and the seven social-psychological variables were then placed into the analysis as a group. Placement of these variables depended upon the strength of their partial correlation with the dependent variable. The results are shown in Table 3.

(TABLE 3 ABOUT HERE)

There are several findings in this analysis which are worthy of mention. Note the difference in results when utilizing GPA as the outcome variable in comparison with those obtained when CAT is the outcome variable. Most of the studies which have analyzed schools' effects have tended to concentrate on standardized achievement measures as the outcome of interest. Further, these studies also consistently demonstrate a high correlation between background factors and standardized measures of achievement. If one examines the CAT analysis, it is clear that these results can be interpreted within this research tradition. As shown

in Table 3, the factors that most strongly predict achievement are the demographic characteristics, with socio-economic status alone accounting for 14.4%, race accounting for an additional 11.0%, and sex still 3.9% more of the CAT variation. Total absence accounts for only 7.6% of the CAT variation once background was controlled and an additional 9.3% of the standardized achievement variation is predictable on the basis of those social-psychological characteristics which significantly added to the equation. The total amount of variation that was significantly explained by all these independent variables was 47.0%.

GPA can be used as an outcome measure or can be viewed in relation to the reinforcement patterns which operate in the school. This analysis is based upon the proposition that the awarding of grades is an officially sanctioned reinforcement procedure used by teachers in the attempt to socialize students to appropriate behaviors. One of the major questions this research examines is: what are the criteria which teachers employ in awarding grades and do their standards vary from school to school?

These questions can be examined with these data by determining the degree to which different variables predict or explain variation in GPA. For example, if absence accounts for a larger share of the variation in GPA than CAT this implies that teachers are rewarding differential expression of attendance more frequently than they are rewarding expressions of cognitive skill as measure by CAT.

Comparing the results shown in Table 2 with Table 3 reveals two interesting trends. First the relative role of background factors is much less influential in predicting achievement as measured by GPA; second, the relative influence of CAT scores is very small, accounting for only 1.4% of the variance in GPA. Attendance accounts for only 7.6% of the variance of CAT scores when student background is controlled; however it accounts for 27.6% of the variance in GPA, again controlling background first. Further, there are relatively small SES and other

demographic influences upon outcomes in GPA.

While some of these results (reported above) may be related to the school district's enrollment policy and practice, analysis of the individual schools makes clear that the relative influences of the demographic, achievement and social-psychological factors are different in each school. At this point, it is proper to note that these results indicate that the predominant effects of SES on achievement which have been regularly reported through the literature are operating in a somewhat different way in this school district.

Section 2:

Table 4 reports the GPA results separately for the four schools. The independent variables were placed into the equation in the same manner as the total population in the following order: SES, followed by Race, Sex and Age, Absence, CAT; the seven social-psychological variables were added based upon the strength of their partial correlation with GPA after all previously entered variables were controlled.

(TABLE 4 ABOUT HERE)

Table 5 presents CAT results separately by school. The placement of independent variables was done identically to our analysis of the population as a total group (Table 3) with SES entered first, followed by Race, Sex and Age. Attendance and the social-psychological variables were entered on the basis of the strength of partial correlation with CAT.

(TABLE 5 ABOUT HERE)

Looking first at the CAT results (Table 5), clearly the demographic factors are the most influential in explaining the outcomes, but the relative proportion explained in each school is different and the amount expalined is considerably varied. SES is the predominant factor only in School B which has a selective policy of student admission. Further, the social-psychological variables are relatively less powerful there than

at Schools C and D. At those two schools, race is the predominant of the demographic factors influencing outcomes, and at each of those schools (C and D) the social-psychological variables are also relatively important.

The results in Table 5 indicate that attendance does not play a significant role in predicting higher achievement results as measured by CAT, never predicting more that 1% at any school. Examining this result from the perspective of school policy or the self-interest of the pupils in these schools, one might well argue against attending school as a means of increasing cognitive skill outcomes. Such an argument would be based on the expectation that the function of school was to increase cognitive skills. This expectation is open to question by the results displayed in Tables 2 and 4, which report on the relative influences of variables upon Grade Point Average. Specifically, these results indicate that CAT does not predict a large proportion of the variation in GPA.

As we see when we look at Table 4, School B resembles the generalizations which are often found in the literature. The variables which predict GPA are varied, but the prime predictors are CAT scores along with the demographic factors, particularly SES. Further, attendance does not play a predominant role in accounting for variation in grades, although it need be noted that the attendance norms for its population are very high and there is less variation in attendance than that for the other of these schools.

Schools A and D have similar patterns in relation to GPA. In both schools, absence predicts over 40% of the variance in GPA with CAT predicting a rather small additional 4.9% and 5.2% of the variance. Very little of the remaining variations at Schools A and D is attributed to social-psychological variables, only adding 3.3% and 3.4% respectively. However, at School D, demographic influences play a more important role, predicting 14.7%, including 8.8% attributable to race alone. Further,

the outcomes for grades are more highly explainable at School D where almost two-thirds of the variance can be explained.

There are other aspects of our data which need to be elaborated as well. There are different patterns of weighting of these variables in the four schools. Grading in Schools A and C is influenced only slightly by demographic factors, with SES accounting for less than 1/100th of the variability in GPA. CAT plays a somewhat larger role in School C than at the other two neighborhood schools (4.9% and 5.2%), and the social-psychological factors at School C are a larger influence than at any of the other schools (9.9% versus 2.4% and 3.4%).

One of the most interesting findings in Table 4 is that grades at schools A, C and D are so much more strongly associated with attendance rather than cognitive skills as measured by CAT. Apparently the academic reward structures in these three schools are different than they are for School B where CAT plays a larger role in predicting GPA. Apparently School B which selects its students based on competitive examination weighs cognitive skills more highly in awarding grades. The other three schools which draw students who are substantially less able with respect to cognitive skills base their reward structure on simple attendance of classes. This suggests that students who have high grades are being socialized towards behaviors which seem on the basis of our data to be independent of cognitive skill development. The implication of this result is not that schools do not make a difference in the prediction of cognitive skill when this is their attempt; rather, the schools it appears are reinforcing values which are distinct from cognitive skills.

Section 3:

The results of the Regression analyses reported in sections one and two certainly appear to make a convincing argument that schools are socializing students to different expectations about desired behaviors.

This section presents data which attempts to define the influences of variable normative environment within the four high schools studied.

Student attitude change over time can be a source of data on school effect. For example, if student attitudes become more homogeneous over time this implies development of an increasingly shared frame of reference. This study attempted to measure a range of student attitudes by questionnaires which were administered to a random sample of students in the four high schools. As shown in Table 6, there was a significant correlation between ninth grade outcomes in student behavior and self-concept of academic ability, sense of control, expectations of significant others and school norms. Those students with the lowest expectations held by significant others and lowest sense of control were also the ones who showed the highest incidence of maladaptive behavior as measured by course failure, absence, and low GPA.

(TABLE 6 ABOUT HERE)

Further, as reported in Table 7, the trend in the results indicate that students will have more negative self-concepts and perceptions of "others" expectations as well as a lower sense of control as the academic year progresses. They also report in May that their peers evidence behavior supporting lower academic achievement than they reported in November. These changes, however, are generally small and not statistically significant. This would indicate that these attitudues are relatively stable for most students.

(TABLE 7 ABOUT HERE)

There was, however, a significant association between change in the school academic norms and ninth grade course failure. ($r = 197$, significant at .032 level, $n=103$). It also appears that while students as a whole experience relatively moderate attitudinal change, the four high schools differ with respect to the amount of attitudinal change their students

experience. This was determined by performing an analysis of variance test on the amount of student attitude change between the four schools over the course of the ninth grade year and is reported in Table 8.

(TABLE 8 ABOUT HERE)

The results indicate that there is indeed a considerable difference between the four schools in the degree to which their students perceive a change in the academic norms which their peers hold regarding behavior supporting academic achievement.

As shown in Table 9 students in School A report the greatest increase in the degree to which their peers evidence behavior discouraging academic achievement. This school also has almost 65% of its students failing one or more courses in the fourth quarter, the second highest failure rate for the four schools. On the other hand School B students, who report a positive gain in the degree to which their peers express behavior supporting academic achievement, has a failure rate in the fourth quarter of only 33%, the lowest rate for the four schools. These results suggest that the academic climates in the four schools do differ and further that the differences in climate are also reflected in the academic behavior of many of the students who attend these schools.

(TABLE 9 ABOUT HERE)

There is other evidence of changes in the socialization pattern for the schools. While much of the focus in Sections one and two was on GPA as a reinforcement measure, the study also collected data on Grade Point Average at the end of the first academic quarter. We had conceptualized the period as one of providing a "transition" between middle schools (eight public and several non-public) and the four high schools. As evidence of changed expectations during this transition, students were three times as likely to experience course failure at the end of the first quarter when compared to the end of the eight grade (55% 6o 16%); and the absence rate increased from 21.2 days

in the eighth grade to 33.5 days in the ninth. Grades for the first quarter were subjected to the same type of regression analysis as those reported earlier. Table 10 displays the change in the explanation of GPA variability due to CAT scores and absence from quarter one to quarter four.

(TABLE 10 ABOUT HERE)

There are two main directions in these data in relation to the GPA results presented earlier. These are the differences in the relative weights given to the cognitive skill measure (CAT) and absence.

At School B, where background CAT influences have been established as explaining most of the grade variation for the year, there were about equal increases between quarter one and quarter four in the amount of variance attributed to CAT and absence (3.4% and 3.5% respectively). At the other three schools, however, there is increasing weight given to absence in explaining grades from quarter one to the end of the year. At School A, attendance explains 5.7% more of the variable while the already small influence of CAT is reduced by 2.3%. At School D, attendance explains 13.3% more of the GPA variance with CAT influences again being reduced by .9%. At School C, attendance explains 11.8% more of the GPA variance; concurrently there is a considerable increase in the CAT explanation of GPA variance (+9.6%). Thus, over the course of the experience in school, there is a general increase in absence as the predictor of grades. Further, at two of the neighborhood schools, A and D, while attendance is increasing as an influence, CAT scores are diminishing from an already small influence. School C shows increases in both.

At one level, we are reporting the common sense logic that there is a cumulative effect of attendance on prediction of GPA. Teachers who would "tolerate" a certain proportion of absence in the first quarter would increasingly recognize the cumulative deficit and provide lower

grades for continuation of the same or increased rate of absence. More importantly, however, is the fact that those who attend are rewarded with higher grades, despite its apparent limited contribution to the development of or influence upon cognitive skill. (See Table 2 and Table 4) Thus, the increased weight given to attendance becomes a measure of the behaviors which are rewarded in three of the schools. While School B maintains cognitive skills as the basis of grades, a[illegible] School C increases the influence of cognitive skills, Schools A,C, [illegible]d D increasingly reward students for attending, with little emphasis given to the influence of cognitive skill factors. These results emphasize that the school's reinforcement pattern may differ and that these differences may influence cognitive skill development in various ways.

Conclusion:

The data and analysis presented here are the first stages of reporting on the larger study being carried out. There are several questions to be explored in the future:

(1) to what degree do the differences in climate operate on the varied subpopulations of each school and between schools;

(2) to what degree will the findings of this report be sustained or modified by the further experience of students in the high school environments? Is there a trend in the data that is related to the ninth grade transition that may not continue throughout the remaining three years of high school?

Each of the three neighborhood schools has a dropout rate over four years that varies from one-third to one-half of the entrants. When these dropouts have left the schools, do cognitive skills (as measured by CAT) come to play a larger role in the reward system employed by teachers in assigning grades?

Table 1

Selected Characteristics of the Four High Schools

| | SCHOOL A | SCHOOL B | SCHOOL C | SCHOOL D |
|---|---|---|---|---|
| Enrollment | 604 | 416 | 372 | 388 |
| A. SOCIAL BACKGROUND | | | | |
| Percentage: Male | 49.2% | 39.7% | 55.3% | 51.5% |
| Female | 50.8% | 60.3% | 44.7% | 38.5% |
| Percentage: White | 79% | 74% | 93% | 70% |
| Black | 21% | 26% | 7% | 30% |
| SES Status distribution (by percentage of school population in occupational categories) | | | | |
| 1. professional, technical | 9.1% | 29.0% | 5.0% | 9.7% |
| 2. manager, official or executive | 7.3% | 21.8% | 10.0% | 13.1% |
| 3. clerk or office worker | 5.6% | 6.9% | 7.9% | 5.3% |
| 4. skilled trade or craftsman | 34.1% | 23.4% | 51.4% | 39.8% |
| 5. operative or semi-skilled | 28.4% | 12.9% | 17.1% | 25.7% |
| 6. laborer | 15.8% | 6.0% | 8.6% | 6.3% |
| B. SCHOOL BACKGROUND GRADE 8 | | | | |
| Percentage attending non-public school | 19.5% | 37.1% | 8.5% | 8.9% |
| CAT Reading Scores n= | 416 | 227 | 262 | 352 |
| percentile mean of entering class | 21st | 66th | 24th | 28th |
| percentage of class above national means | 8% | 70% | 16% | 20% |
| ABSENCE Grade 8 n= | 450 | 219 | 277 | 357 |
| mean days absent | 28.6 | 10.6 | 23.5 | 16.6 |
| percentage absent 20 days or more | 55.8% | 18.7% | 44.0% | 30.5% |
| FAILURE GRADE 8 | | | | |
| percentage failing 1 course or more | 21.4% | 0.3% | 32.9% | 19.8% |
| percentage failing 2 or more courses | 8.1% | 0.0% | 14.4% | 6.0% |

Table 2

Regression Analysis on G.P.A.
Total Population

| VARIABLE | Simple R | Multiple R | $R^2$ | $R^2$ Change | Significance |
|---|---|---|---|---|---|
| SES | 0.16952 | 0.16952 | 0.02874 | 0.02874 | .0001 |
| Race | 0.16508 | 0.22679 | 0.05144 | 0.02270 | .0001 |
| Sex | 0.07544 | 0.24124 | 0.05820 | 0.00676 | .01 |
| Age | -0.21655 | 0.29466 | 0.08683 | 0.02863 | .0001 |
| Absence | -0.58532 | 0.60247 | 0.36297 | 0.27614 | .0001 |
| Self Concept | -0.26778 | 0.63916 | 0.40853 | 0.04557 | .0001 |
| C.A.T. | 0.42595 | 0.65034 | 0.42294 | 0.01441 | .001 |
| Ed. Plans | 0.08873 | 0.65598 | 0.43031 | 0.00737 | .05 |
| Par-Stu Interaction | -0.18099 | 0.65880 | 0.43402 | 0.00370 | N.S. |
| Sense of Control | 0.25990 | 0.65998 | 0.43557 | 0.00156 | N.S. |
| School Disorder | 0.00261 | 0.66038 | 0.43610 | 0.00052 | N.S. |
| School Attraction | -0.16118 | 0.66057 | 0.43635 | 0.00025 | N.S. |

One Social-Psychological variable, social integration was omitted because the F-level was insufficient for computation.

Table 3

Regression Analysis on C.A.T.
Total Population

| VARIABLE | Simple R | Multiple R | $R^2$ | $R^2$ Change | Significance |
|---|---|---|---|---|---|
| SES | 0.37949 | 0.37949 | 0.14401 | 0.14401 | .0001 |
| Race | 0.36456 | 0.50438 | 0.25440 | 0.11039 | .0001 |
| Age | 0.04922 | 0.50847 | 0.25854 | 0.00414 | .05 |
| Sex | -0.28960 | 0.54621 | 0.29835 | 0.03981 | .0001 |
| Absence | 0.41389 | 0.61170 | 0.37418 | 0.07583 | .0001 |
| Sense of Control | 0.35421 | 0.64275 | 0.41312 | 0.03894 | .0001 |
| Ed. Plans | 0.27860 | 0.66627 | 0.44392 | 0.03080 | .0001 |
| Self Concept | -0.21379 | 0.67750 | 0.45901 | 0.01510 | .0001 |
| School Disorder | 0.07926 | 0.68078 | 0.46346 | 0.00444 | .05 |
| Social Integration | 0.01835 | 0.68379 | 0.46757 | 0.00411 | .05 |
| School Attraction | -0.18219 | 0.68592 | 0.47048 | 0.00292 | N.S. |

One Social-Psychological variable, Parent Student interaction , was omitted because the F-level was insufficient for computation.

Table 4
Regression Analysis on G.P.A.
Individual Schools

| VARIABLE | Simple P | Multiple R | $R^2$ | $R^2$ Change | Significance |
|---|---|---|---|---|---|
| SCHOOL A | | | | | |
| SES | 0.02516 | 0.02516 | 0.00063 | 0.00063 | N.S. |
| Race | -0.06892 | 0.07263 | 0.00528 | 0.00464 | N.S. |
| Age | 0.06273 | 0.09528 | 0.00908 | 0.00380 | N.S. |
| Sex | -0.16117 | 0.17250 | 0.02976 | 0.02068 | .001 |
| Absence | -0.64649 | 0.65774 | 0.43262 | 0.40286 | .0001 |
| C.A.T. | 0.26105 | 0.69618 | 0.48189 | 0.04927 | .0001 |
| Self Concept | -0.24682 | 0.70935 | 0.50317 | 0.02128 | .0001 |
| Sense of Control | 0.31097 | 0.71782 | 0.51526 | 0.01209 | .025 |
| Ed. Plans | 0.06082 | 0.72352 | 0.52348 | 0.00821 | N.S. |
| School Disorder | 0.07653 | 0.72751 | 0.52928 | 0.00580 | N.S. |
| Social Integration | 0.02538 | 0.72865 | 0.53093 | 0.00166 | N.S. |
| School Attraction | -0.16706 | 0.72925 | 0.53180 | 0.00087 | N.S. |
| SCHOOL B | | | | | |
| SES | 0.30361 | 0.30361 | 0.09218 | 0.09218 | .0001 |
| Race | 0.27235 | 0.38942 | 0.15165 | 0.05947 | .0001 |
| Age | 0.00808 | 0.39187 | 0.15356 | 0.00191 | N.S. |
| Sex | -0.22105 | 0.43254 | 0.18709 | 0.03353 | .0001 |
| C.A.T. | 0.61005 | 0.66072 | 0.43655 | 0.24946 | .0001 |
| Absence | -0.36439 | 0.70570 | 0.49801 | 0.06146 | .0001 |
| Self Concept | -0.34189 | 0.72619 | 0.52736 | 0.02935 | .0001 |
| Ed. Plans | 0.15627 | 0.73560 | 0.54111 | 0.01376 | .025 |
| Par-Stu Interaction | -0.14637 | 0.73909 | 0.54626 | 0.00515 | N.S. |
| Social Integration | 0.73715 | 0.74012 | 0.54778 | 0.00152 | N.S. |
| School Disorder | -0.03851 | 0.74076 | 0.54872 | 0.00093 | N.S. |
| Sense of Control | 0.18593 | 0.74135 | 0.54960 | 0.00088 | N.S. |
| School Attraction | -0.06835 | 0.74166 | 0.55006 | 0.00046 | N.S. |
| SCHOOL C | | | | | |
| SES | 0.08121 | 0.08121 | 0.00659 | 0.00659 | N.S. |
| Race | 0.04359 | 0.09300 | 0.00865 | 0.00205 | N.S. |
| Age | -0.09876 | 0.12549 | 0.01575 | 0.00710 | N.S. |
| Sex | 0.00587 | 0.12598 | 0.01587 | 0.00012 | N.S. |
| Absence | -0.56009 | 0.58275 | 0.33960 | 0.32373 | .0001 |
| C.A.T. | 0.42052 | 0.67085 | 0.45005 | 0.11045 | .0001 |
| Self Concept | -0.29379 | 0.69988 | 0.48983 | 0.03979 | .01 |
| Ed. Plans | -0.04807 | 0.72699 | 0.52851 | 0.03868 | .01 |
| Par-Stu Interaction | -0.18687 | 0.74144 | 0.54973 | 0.02122 | .05 |
| School Attraction | -0.16118 | 0.74790 | 0.55935 | 0.00963 | N.S. |
| Social Integration | -0.03379 | 0.75089 | 0.56384 | 0.00448 | N.S. |
| School Disorder | -0.06395 | 0.75198 | 0.56547 | 0.00163 | N.S. |

One Social-Psychological variable, Sense of Control, was omitted because the F-level was insufficient for computation.

Table 4 (continued)
Regression Analysis on G.P.A.
Individual Schools

| VARIABLE | Simple R | Multiple R | $R^2$ | $R^2$ Change | Significance |
|---|---|---|---|---|---|
| SCHOOL D | | | | | |
| SES | 0.06299 | 0.06299 | 0.00397 | 0.00397 | N.S. |
| Race | 0.29873 | 0.30438 | 0.09265 | 0.08868 | .0001 |
| Age | 0.14415 | 0.34070 | 0.11608 | 0.02343 | .001 |
| Sex | -0.25164 | 0.36175 | 0.13086 | 0.01478 | .025 |
| Absence | -0.68629 | 0.74540 | 0.55562 | 0.42476 | .0001 |
| C.A.T. | 0.44315 | 0.77948 | 0.60759 | 0.05197 | .0001 |
| Par-Stu Interaction | -0.16974 | 0.79098 | 0.62564 | 0.01806 | .025 |
| Ed Plans | 0.01177 | 0.80132 | 0.64212 | 0.01648 | .025 |
| Self Concept | -0.18971 | 0.80378 | 0.64606 | 0.00394 | N.S. |
| School Attraction | -0.16361 | 0.80435 | 0.64698 | 0.00092 | N.S. |
| Sense of Control | 0.23685 | 0.80485 | 0.64778 | 0.00081 | N.S. |
| Social Integration | 0.09221 | 0.80524 | 0.64841 | 0.00063 | N.S. |
| School Disorder | -0.00581 | 0.80532 | 0.64854 | 0.00013 | N.S. |

Table 5

Regression Analysis on C.A.T.
Individual Schools

| VARIABLE | Simple R | Multiple R | $R^2$ | $R^2$ Change | Significance |
|---|---|---|---|---|---|
| SCHOOL A | | | | | |
| SES | 0.03717 | 0.03717 | 0.00138 | 0.00138 | N.S. |
| Race | 0.09487 | 0.10307 | 0.01062 | 0.00924 | N.S. |
| Age | -0.12098 | 0.15187 | 0.02306 | 0.01244 | N.S. |
| Sex | -0.02566 | 0.16456 | 0.02708 | 0.00402 | N.S. |
| Sense of Control | 0.22851 | 0.27725 | 0.07687 | 0.04979 | .0001 |
| Self Concept | -0.20432 | 0.30669 | 0.09406 | 0.01720 | N.S. |
| Ed. Plans | -0.13269 | 0.32072 | 0.10286 | 0.00880 | N.S. |
| School Attraction | -0.14575 | 0.33270 | 0.11069 | 0.00783 | N.S. |
| Social Integration | 0.08819 | 0.34078 | 0.11613 | 0.00025 | N.S. |

Two Variables, Absence and Parent-Student interaction, we omitted because the F-Value was insufficient for computation.

| | | | | | |
|---|---|---|---|---|---|
| SCHOOL B | | | | | |
| SES | 0.29288 | 0.29288 | 0.08578 | 0.08578 | .0001 |
| Race | 0.22449 | 0.35288 | 0.12452 | 0.03874 | .0001 |
| Age | -0.08600 | 0.35752 | 0.12782 | 0.00330 | N.S. |
| Sex | -0.08666 | 0.36165 | 0.13079 | 0.00297 | N.S. |
| Self Concept | -0.26467 | 0.41627 | 0.17328 | 0.04249 | .0001 |
| Sense of Control | 0.19120 | 0.44889 | 0.20150 | 0.02822 | .001 |
| School Disorder | -0.10060 | 0.46628 | 0.21742 | 0.01592 | .05 |
| Absence | -0.15558 | 0.47603 | 0.22660 | 0.00918 | N.S. |
| Ed. Plans | 0.09424 | 0.48471 | 0.23495 | 0.00834 | N.S. |
| School Attraction | -0.04371 | 0.48757 | 0.23772 | 0.00278 | N.S. |
| Social Integration | -0.00409 | 0.48812 | 0.23826 | 0.00053 | N.S. |
| Par-Stu Interaction | -0.10636 | 0.48823 | 0.23837 | 0.00011 | N.S. |
| SCHOOL C | | | | | |
| SES | 0.13918 | 0.13918 | 0.01937 | 0.01937 | .05 |
| Race | 0.42193 | 0.43259 | 0.18713 | 0.16776 | .0001 |
| Age | 0.19454 | 0.47855 | 0.22901 | 0.04188 | .001 |
| Sex | -0.26033 | 0.50971 | 0.25981 | 0.03080 | .01 |
| Self Concept | -0.20981 | 0.57408 | 0.32956 | 0.06976 | .0001 |
| Sense of Control | 0.27298 | 0.60051 | 0.36062 | 0.03106 | .01 |
| School Attraction | -0.11908 | 0.61280 | 0.37552 | 0.01490 | N.S. |
| Ed. Plans | 0.11416 | 0.62471 | 0.39027 | 0.01475 | N.S. |
| Par-Stu Interaction | 0.03856 | 0.63289 | 0.40055 | 0.01029 | N.S. |
| Absence | -0.11698 | 0.64164 | 0.41170 | 0.01114 | N.S. |
| Social Integration | 0.11092 | 0.64368 | 0.41432 | 0.00262 | N.S. |
| School Disorder | -0.02323 | 0.64483 | 0.41580 | 0.00148 | N.S. |

Table 5
Regression Analysis on C.A.T.
Individual Schools (continued)

| VARIABLE | Simple R | Multiple R | $R^2$ | $R^2$ Change | Significance |
|---|---|---|---|---|---|
| SCHOOL D | | | | | |
| SES | 0.16279 | 0.16279 | 0.02650 | 0.02650 | .001 |
| Race | 0.40134 | 0.43083 | 0.18561 | 0.15911 | .0001 |
| Age | 0.04265 | 0.43566 | 0.18980 | 0.00419 | N.S. |
| Sex | -0.31939 | 0.46990 | 0.22080 | 0.03100 | .001 |
| Self Concept | -0.25650 | 0.55187 | 0.30456 | 0.08376 | .0001 |
| Sense of Control | 0.36298 | 0.58083 | 0.33736 | 0.03280 | .001 |
| Social Integration | -0.04281 | 0.60414 | 0.36499 | 0.02762 | .001 |
| Absence | -0.19628 | 0.61139 | 0.37380 | 0.00882 | N.S. |
| Par-Stu Interaction | 0.08666 | 0.61705 | 0.38075 | 0.00695 | N.S. |
| Ed. Plans | 0.06461 | 0.62089 | 0.38550 | 0.00475 | N.S. |
| School Attraction | -0.00462 | 0.62295 | 0.38806 | 0.00256 | N.S. |
| School Disorder | 0.04073 | 0.62398 | 0.38935 | 0.00128 | N.S. |

Table 6

ASSOCIATION BETWEEN SOCIAL PSYCHOLOGICAL VARIABLES AND NINTH GRADE OUTCOMES

| OUTCOME MEASURE | *CORRELATION | STATISTICAL SIGNIFICANCE | NUMBER OF CASES |
|---|---|---|---|
| **SELF CONCEPT OF ACADEMIC ABILITY** | | | |
| Absence | 0.129 | .001 | 822 |
| Course Failure:Q1 | 0.136 | .001 | 901 |
| Course Failure:Q4 | 0.207 | .001 | 884 |
| **SENSE OF CONTROL** | | | |
| Absence | -0.213 | .001 | 847 |
| Course Failure:Q1 | -0.209 | .001 | 933 |
| Course Failure:Q4 | -0.173 | .001 | 913 |
| **EXPECTATIONS OF SIGNIFICANT OTHERS** | | | |
| Absence | 0.305 | .001 | 149 |
| Course Failure:Q1 | 0.254 | .001 | 166 |
| Course Failure:Q4 | 0.263 | .001 | 164 |
| **SCHOOL ACADEMIC NORMS** | | | |
| Absence | -0.169 | .018 | 152 |
| Course Failure:Q1 | -0.129 | .048 | 169 |
| Course Failure:Q4 | -0.169 | .014 | 167 |

*Pearson Product Moment Correlation

Table 7

CHANGE IN STUDENT ATTITUDES DURING THE NINTH GRADE

This table looks at mean change from the beginning to the end of the ninth grade year. Data is based upon a random sample of 177 students.

| Attitude | Mean Change | Range of Attitude | Standard Deviation Attitude |
|---|---|---|---|
| Self-Concept of academic ability | -.023 | -1.143 to +0.714 | 0.343 |
| Sense of Control | -40.181 | -1.500 to +1.500 | 0.558 |
| Academic Expectations held by others | -0.001 | -1.333 to +1.417 | 0.433 |
| School Norms | -.0223 | -2.583 to +1.583 | 0.754 |

TABLE 8

TEST OF THE DEGREE TO WHICH THE FOUR HIGH SCHOOLS DIFFER WITH RESPECT TO CHANGE IN ATTITUDES DURING NINTH GRADE *

| ATTITUDE | F VALUE | DEGREES OF FREEDOM | STATISTICAL SIGNIFICANCE |
|---|---|---|---|
| Self=Concept of academic ability | 0.439 | 3/76 | non-sig |
| Sense of Control | 0.734 | 3/49 | non-sig |
| Academic expectations held by others | 0.553 | 3/101 | non-sig |
| School Norms | 4.898 | 3/100 | >.005 |

TABLE 9

CHANGE IN SCHOOL ACADEMIC NORMS FOR THE FOUR HIGH SCHOOLS

| SCHOOL | MEAN CHANGE | STANDARD DEVIATION |
|---|---|---|
| A | -0.598 | 0.858 |
| B | +0.131 | 0.617 |
| C | -0.027 | 0.537 |
| D | -0.310 | 0.794 |
| TOTAL | -0.223 | 0.754 |

* Based upon random sample of 177 students

Table 10

CHANGE IN PERCENT OF GPA VARIABILITY EXPLAINED BY ATTENDANCE AND C.A.T. SCORES

| | Total | School A | School B | School C | School D |
|---|---|---|---|---|---|
| CAT Influence on GPA($r^2$) | | | | | |
| $Q^1$ | 1.3% | 7.2% | 21.5% | 1.4% | 6.3% |
| $Q^2$ | 1.4% | 4.9% | 24.9% | 11.0% | 5.2% |
| Change | +0.1% | -2.3% | +3.4% | +9.6% | -0.9% |
| Absence Influence on GPA($r^2$) | | | | | |
| $Q^1$ | 21.9% | 34.6% | 2.6% | 20.6% | 29.2% |
| $Q^2$ | 27.6% | 40.3% | 6.1% | 32.4% | 42.5% |
| Change | +5.5% | +5.7% | +3.5% | +11.8% | +13.3% |
| Total Expanation of the Regression Equation | | | | | |
| $Q^1$ | 38,5% | 52.1% | 43.4% | 41.5% | 54.7% |
| $Q^2$ | 43.0% | 51.5% | 54.1% | 55.0% | 64.2% |
| Change | +4.5% | -0.6% | +9.7% | +13.5% | +9.5% |

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